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EXAMINER	
DOTE, JANIS L	

ART UNIT	PAPER NUMBER
1756	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,640	SUGIURA ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/28/03; 12/8/03;* 3/9/04; 3/22/04; 8/6/04; 9/23/04; 12/9/04; 10/11/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicants' election with traverse of the invention of Group I, claims 1-18 and 21, in the reply filed on Aug. 22, 2005, is acknowledged. The traversal is on the ground(s) that the examiner did not meet the requirements under sections 806.05(h) and 806.05(e) by providing reasons as to why the toners and the apparatus in Group I are patentably distinct from the method of using in Group II. Applicants assert that "it is not evidence [sic] the claimed image-forming process can be performed by hand." Applicants also assert that the process of Group II includes the oxide particles recited in Group I.

This is not found persuasive. Contrary to applicants' assertions, as set forth in the restriction requirement, the examiner has provided reasons as to why the oxide particles (Ia), the toners (Ib), and the apparatuses (Ic) in Group I are patentably distinct from the image forming method in Group II. The examiner did not merely generalize that "one of the features of the invention may be excluded" as asserted by applicants. The restriction requirement in the paragraph bridging pages 2 and 3, states that the "claimed product [the toner] can be used in a materially different process, such as a process comprising the steps of forming an electrostatic latent image on an image carrier, developing said electrostatic latent image with the toner of Invention I(b), and fixing the developed

toner image to the image carrier. Such a process does not require transferring the toner image to a recording medium as required in the processes of Invention II." The examiner is not currently aware of any art that would render one process obvious over the other. Applicants should submit such art if they are aware of any, or admit clearly on the record that the processes are obvious variants of one another. Moreover, applicants have not provided any reasons why the toners in Group I cannot be used in the process set forth in the restriction requirement.

Furthermore, it has been well known for more than 60 years in the electrophotography art that the process steps recited in Group II, claims 19 and 20, can be performed by hand, as shown in US 2,297,691 (Carlson). Carlson shows that the steps recited in the method of claims 19 and 20 can be performed by hand as set forth in the restriction requirement at pages 3-4. The restriction requirement at pages 3-4, stated that the following steps can be performed by hand:

(1) "The charging step can be performed by vigorously rubbing the surface of the latent electrostatic image-bearing member with a soft material, such as a cotton or silk handkerchief." See Carlson, Fig. 1, and page 2, col. 2, lines 2-8, for the charging step.

(2) "The light irradiating step can be performed by placing

a transparency comprising a light opaque pattern on the charged latent electrostatic image-bearing member and irradiating light through the transparency with a hand-held light source to form an electrostatic latent image." See Carlson, Fig. 2A, and page 2, col. 2, line 64, to page 3, col. 1, line 2.

(3) "The developing step can be performed by hand sprinkling a toner onto the image-wise exposed latent electrostatic image-bearing member from a can that comprises the toner." See Carlson, Fig. 3, and page 3, col. 1, lines 45-53 and 64-70.

(4) "The transfer step can be performed by placing a receiving medium, such as a piece of paper, on the toned image on the image-bearing member and hand pressing the surface of the receiving medium to the image member with a block, and then separating the receiving member with the transferred toned image from the image member." See Carlson, Fig. 5, and page 3, col. 2, lines 43-52.

Accordingly, a person having ordinary skill in the art would have readily recognized that the process steps recited in Group II could be done by hand. Moreover, applicants have not provided any reasons why the image forming method in Group II cannot be practiced by hand as set forth in the restriction requirement.

Furthermore, for the reasons discussed in the restriction requirement, Invention I(c) and Invention II are unrelated because they have different functions and different effects. The image forming method in Invention II forms toner images on a recording medium. Invention I(c) is drawn merely to oxide particles. The restriction requirement also stated that the "oxide particles in Invention I(c) can be used as a filler for RTV silicon compositions." Applicants have not provided any reasons as to how the oxide particles in Invention I(c) have the same function and effect as the image forming method in Invention II.

Moreover, applicants have not provided any reasons why the oxide particles, the toners, and the apparatus in Group I and the image forming method in Group II are not patentably distinct, nor have applicants stated on the record that the inventions of the two groups are obvious variations of each other.

The requirement is still deemed proper and is therefore made FINAL.

2. The examiner acknowledges applicants' elected species, oxide particles comprising the metal element Ti. Claims 1-18 and 21 read on the elected species.

Accordingly, claims 19 and 20 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention and nonelected species of invention, there being no allowable generic or linking claim. Applicants timely traversed the restriction (election) requirement in Aug. 22, 2005.

3. The examiner has considered only the material submitted by applicants, i.e., copies of the originally filed claims, abstract, and figures, of the US applications listed in the "List of related cases" in the Information Disclosure Statements (IDS) filed on Mar. 9, 2004, Mar. 22, 2004, and Aug. 6, 2004.

The examiner has considered the US applications listed on the "List of related cases" in the IDS's filed on Dec. 9, 2004, and Oct. 11, 2005.

4. The "List of related cases" in the information disclosure statements filed on Nov. 28, 2003, and on Sep. 23, 2004, do not fully comply with the requirements of 37 CFR 1.98 because there are no copies of those portions of the copending U.S. applications which caused them to be listed present in the instant application.

Contrary to applicants' statements, the waiver of the copy

requirement in 37 CFR 1.98 for cited pending U.S. patent applications was published in the Official Gazette on Oct. 19, 2004, after the IDS was filed on Sep. 23, 2004. See 1287 Off. Gaz. Pat. Office 163 (Oct. 19, 2004). The waiver was not retroactive.

Since the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

In Figs. 1 and 2, reference characters **42K**, **43K**, and **44K**. See the specification, pages 101 and 102.

In Fig. 7, reference characters **101**, **102**, **103**, **104**, **105**, and **106**.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Figs. 1 and 2 do not comprise the reference characters **42BK**, **43BK**, and **44BK** described in the specification at pages 101 and 102.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The disclosure is objected to because of the following informalities:

(1) The specification labels the black toner developing unit in Figs. 1 and 2 with reference characters **45K** and **45BK**. See page 101, lines 14 and 25, of the specification.

(2) The use of trademarks, e.g., Henschel mixer [sic: HENSCHEL MIXER] at page 38, line 12, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

8. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

(1) In claim 4, the recitation "SF1 of 100 to 120" lacks antecedent basis in the specification. See page 39, lines 7-8, of the specification, which discloses that the oxide particles have an "SF1 of 100 to 130, preferably from 100 to 125" (emphasis added).

(2) In claim 6, the metal element "Si" lacks antecedent basis in the specification. See page 38, lines 17-24, of the specification.

(3) In claim 8, the recitation "elements of the oxide fine particles are uniformly dispersed between a surface of the oxide fine particles and an inner portion of the oxide fine particles" lacks antecedent basis in the specification.

(4) In claim 9, the broadly recited term "organosilicon compound" lacks antecedent basis in the specification. See page 42, line 20, to page 43, line 2, of the specification, which discloses silane coupling agents, silicone oil, silicone varnish, and organosilicon compound coupling agents. The term "organosilicon compound" is broader than the disclosed compounds because it includes organosilicon compounds that are not a coupling agent, a silicone oil, or a silicone varnish.

(5) In claim 15, the recitation "one or more external additives wherein the one or more external additives have smaller particle diameter than the particle diameter of the

external additive of the toner" lacks antecedent basis in the specification.

(6) In claim 21, the broadly recited image-forming apparatus lacks antecedent basis in the specification.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 6, 8, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is indefinite in the phrase "metal element is . . . Si" because Si is not a metal. See Grant & Hackhs's Chemical Dictionary, fifth edition, page 531, which states that Si is a "nonmetallic element of the carbon group."

Claim 8 is indefinite in the phrase "elements of the oxide fine particles are uniformly dispersed between a surface of the oxide fine particles and an inner portion of the oxide fine particles" (emphasis added) for lack of unambiguous antecedent

basis in claim 1, from which claim 8 depends. It is not clear to what the term "elements" refers in instant claim 1.

Claim 15 is indefinite in the phrase "further comprises one or more external additives wherein the one or more external additives have smaller particle diameter than the particle diameter of the external additive of the toner" (emphasis added) because it is not clear relative to what "the one or more external additives have smaller particle diameter," e.g., the oxide fine particles recited in claim 12 from which claim 15 depends, or to some other external additive.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

14. Claim 21 is rejected under 35 U.S.C. 102(b) as being anticipated by US 5,430,526 (Ohkubo).

Ohkubo discloses an electrophotographic image forming apparatus that meets the structural components recited in instant claim 21. Fig. 1 and col. 2, line 56, to col. 3, line 56. The apparatus shown in Fig. 1 comprises a photosensitive drum **3**, i.e., a latent image-bearing member, a charging roller **4** to charge the photosensitive drum **3**, a laser scanning unit **1**, i.e., a light-irradiator, that imagewise

exposes the charged photosensitive drum to form an electrostatic latent image, a developing unit **5**, and a transfer roller **7**.

Ohkubo does not exemplify the particular developer recited in the instant claim. However, the instant claim does not positively recite that the apparatus comprises the particular developer. Instant claim 21 merely recites "an image-developer configured to supply a developer to the latent electrostatic image, and to visualize the latent electrostatic image, so as to form a toner image" (emphasis added). The particular developer recited in the instant claims does not distinguish the structural elements in the instantly claimed apparatus from those in the apparatus in Ohkubo. A material (i.e., the toner) worked upon by the apparatus does not limit the apparatus claims. "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." See MPEP 2115. It is well settled, as stated in Ex parte Masham, 2 USPQ2d 1647, 1648 (Bd. Pat. App. & Int. 1987) that "a recitation with respect to the material intended to be worked upon by a claimed apparatus does not impose any structural limitations upon the claimed apparatus which differentiates it from the prior art apparatus satisfying the structural limitations of that claimed." Accordingly, the particular developer recited in the instant claim does not

distinguish the instantly claimed apparatus from the apparatus disclosed by Ohkubo.

15. Claims 1-18 and 21 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over European Patent 1,319,992 A1 (EP'992), as evidenced by applicants' admissions in the instant specification at page 21, lines 2-24, and in Tables 1 and 2, examples 1-11 and comparative examples 3 and 4.

EP'992 discloses a number of two-component developers that comprise a carrier and a toner comprising hydrophobic oxide particles.

In examples 2 and 5 of EP'992, the developers comprise a toner that comprises: (1) toner particles comprising a polyol binder resin and a colorant; (2) hydrophobic oxide particles **2** or **5**; (3) hydrophobic silica particles having a primary particle diameter of 10 nm; and (4) titanium oxide particles having a primary particle diameter of 15 nm. See paragraphs 0257-0259, and examples 2 and 5 in paragraph 0266 and in Table 2. The toner particles have a weight average particle size of 6.5 μm. The hydrophobic oxide particles are present in an amount of 1.0 wt% based on the weight of the toner, which meets the amount ranges recited in instant claims 13 and 14. Hydrophobic oxide

particles **2** and **5** have a number average primary particle diameter of 40 nm and 50 nm, respectively. Paragraph 0094 and Table 2. The number average primary particle diameters of 40 nm and 50 nm meet the range of 30 to 300 nm recited in instant claims 1, 12, 18, and 21. The particle diameter of 50 nm also meets the range or 50 nm to 170 nm recited in instant claim 2. The polyol binder resin meets the toner binder resin limitation recited in instant claim 16. The hydrophobic silica particles and titanium oxide particles meet the external additives limitation recited in instant claim 15. Both hydrophobic oxide particles **2** and **5** are obtained by surface treating the oxide particles with the organosilicon coupling agent, hexamethyl disilazane, which meets the compositional limitations recited in instant claims 9 and 10. Hydrophobic oxide particles **2** comprise the metal element Ti, which is uniformly dispersed at the surface and inside parts of the oxide particles. Paragraph 0056, item (2), and Table 2. Hydrophobic oxide particles **2** meet the element compositional limitations recited in instant claims 5-8.

In example 7 of EP'992, the developer comprises a toner that comprises: (1) the same toner particles used in examples 2 and 5; (2) hydrophobic oxide particles **7**; (3) hydrophobic silica particles having a primary particle diameter of 10 nm; and (4)

titanium oxide particles having a primary particle diameter of 15 nm. See example 7 in paragraph 0266 and in Table 2. The hydrophobic oxide particles are present in an amount of 1.0 wt% based on 100 weight of the toner, which meets the amount ranges recited in instant claims 13 and 14. Hydrophobic oxide particles **7** have a number average primary particle diameter of 149 nm, which meets the range of 30 to 300 nm recited in instant claims 1, 12, 18, and 21. The hydrophobic silica particles and titanium oxide particles meet the external additives limitation recited in instant claim 15. Hydrophobic oxide particles **7** are obtained by surface treating the oxide particles with a silicone oil. Hydrophobic oxide particles **7** exhibit a liberation ratio of silicone oil of 20%, which meets the compositional limitations recited in instant claim 11. Hydrophobic oxide particles **7** comprise the metal element Ti, which is uniformly dispersed at the surface and inside parts of the oxide particles. Paragraph 0056, item (2), and Table 2. The element Ti in hydrophobic oxide particles **7** meets the element compositional limitations recited in instant claims 5-8.

In example 15 of EP'992, the developer comprises a toner that comprises: (1) toner particles comprising a polyester binder resin and a colorant; (2) hydrophobic oxide particles **1**; (3) hydrophobic silica particles having a primary particle

diameter of 10 nm; and (4) titanium oxide particles having a primary particle diameter of 15 nm. See paragraphs 0257-0259, and example 15 in paragraph 0275. The toner particles have a weight average particle size of 6.5 μm. The hydrophobic oxide particles are present in an amount of 1.0 wt% based on the weight of the toner, which meets the amount ranges recited in instant claims 13 and 14. Hydrophobic oxide particles **1** have a number average primary particle diameter of 40 nm. Paragraph 0094 and Table 2. The number average primary particle diameter of 40 nm meets the range of 30 to 300 nm recited in instant claims 1, 12, 18, and 21. The polyester binder resin meets the toner binder resin limitation recited in instant claim 17. The hydrophobic silica particles and titanium oxide particles meet the external additives limitation recited in instant claim 15. Hydrophobic oxide particles **1** comprise the metal element Ti, which is uniformly dispersed at the surface and inside parts of the oxide particles. Paragraph 0056, item (2), and Table 2. Hydrophobic oxide particles **1** meet the element compositional limitations recited in instant claims 5-8.

EP'992 further discloses that its developers can be used in an image forming apparatus. The image forming apparatus comprises a photoreceptor **10**, i.e., a latent electrostatic image-bearing member, a charging roller **20**, a light-irradiator,

a developing unit **40**, which comprises its developer, and an intermediate transfer body **50** that transfers the toner image to a receiving member. Fig. 1, and paragraph 0177.

EP'992 does not disclose that hydrophobic oxide particles **1**, **2**, **5**, and **7** have a circularity of SF1 and SF2 as recited in the instant claims. Nor does EP'992 discloses that the oxide particles have a standard deviation σ of a particle size distribution as recited in the instant claims. However, as discussed above, the toners disclosed by EP'992 meet the compositional limitations recited in the instant claims. EP'992 further discloses that hydrophobic oxide particles **1**, **2**, **5**, and **7** have a substantially spherical shape and have an average roundness of 0.97, 0.97, 0.97, and 0.995, respectively. See paragraph 0056, item (1) and Table 2. The average roundness is the average value of the roundness of the oxide particles, which is defined as the "circumference length corresponding circle/circumference length of projected image of the measured particle." Paragraphs 0095-0096. The instant specification discloses that the toners comprising oxide particles having the SF1 and SF2 values and the particle size distribution recited in the instant claims provide images with stable quality even after storage at low temperatures and low humidity. The toners have excellent image transfer properties, development properties, and

image fixing properties. The toners exhibit satisfactory electrostatic stability, and provide images with no toner scattering. Specification, page 21, lines 2-24, and Table 1. Table 1 shows that when the oxide particles have SF1 and SF2 values that are not within the ranges recited in the instant claims, toner scattering and transfer dust are observed. The images formed have hollow defects, toner deposition on the background of the images, and poor image density. The toner does not exhibit sufficient transferability, and does not exhibit electrostatic stability in environments of high temperature and high humidity and of low temperature and low humidity. Comparative example 4 in Tables 1 and 2, where the SF1 is 131 and the SF2 is 127. Table 1 also shows that when the oxide particles do not have a particle size distribution as recited in the instant claims, toner scattering is observed. The oxide particles are fully embedded in the surface of the toner particles. The images formed have hollow defects and poor thin line reproducibility. Comparative example 3 in Tables 1 and 2, where σ is about 0.09R. EP'992 discloses that the toners in examples 2, 5, 7, and 15 comprising hydrophobic oxide particles **1**, **2**, **5**, or **7** have excellent image transfer properties, development properties, and image fixing properties. Paragraphs 0043-0054. The toners have sufficient

transferability, i.e., fluidity, and exhibit electrostatic stability in environments of high temperature and high humidity and of low temperature and low humidity. The toners provide toner images with good image density, thin line reproducibility, and with no or very little hollow defects, background toner deposition, and toner scattering. The oxide particles are not completely embedded in the surface of the toner particles. EP'992, Table 1, examples 2, 5, 7, and 15. These properties appear to be the same properties sought by applicants. Accordingly, because the toners comprising hydrophobic oxide particles **1**, **2**, **5**, or **7**, in the examples of EP'992 meet the compositional limitations recited in the instant claims, and because the toners appear to have to the properties sought by applicants, it reasonable to presume that the EP'992 hydrophobic oxide particles have a SF1 value, a SF2 value, and a particle size distribution as recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

As discussed supra, in the examples of EP'992, EP'992 states that the toner particles have a weight average particle size of 6.5 μm, not a volume average particle size as recited in instant claims 12, 18, and 21. However, EP'992 teaches that the toner particles have a volume average particle size of 2 to

10 μm. Page 8, lines 1-3, and reference claim 6. The particle size value of 6.5 μm is within the numerical range of the volume average particle size of 2 to 7 μm recited in instant claim 12. Thus, based on the reasonable presumption that the toner particles have uniform density, it is reasonable to conclude that the toner particles in the examples of EP'992 have a volume average particle size of 6.5 μm. Accordingly, the burden is on applicants to prove otherwise. Fitzgerald, supra.

16. US 2003/0031946 (Sugiura) was published on Feb. 13, 2003, before filing date of Jul. 15, 2003, of the instant application. Sugiura has an effective filing date of Mar. 4, 2002. The inventive entity of Sugiura differs from that of the instant application. Thus, Sugiura qualifies as prior art under 35 U.S.C. 102(a) and under 35 U.S.C. 102(e). Accordingly, Sugiura qualifies also as prior art under 35 U.S.C. 103(c).

17. Claims 1, 3, 4, and 9 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sugiura, as evidenced by applicants' admissions in the instant specification in Tables 1 and 2, examples 1-13 and comparative examples 3 and 4 (applicants' admissions I).

Claims 1, 3, 4, and 9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sugiura, as evidenced by applicants' admissions I.

Sugiura discloses hydrophobic silicon oxide particles having a number average primary particle diameter of 40 nm. The hydrophobic silicon oxide particles are obtained by surface treating silicon oxide particles with a polydimethyl siloxane. Paragraph 0048 and example 1 in paragraphs 0118-0119. The number average primary particle diameter of 40 nm meets the range of 30 to 300 nm recited in instant claim 1. The treatment with polydimethyl siloxane meets the organosilicon compound limitations recited in instant claim 9.

Sugiura does not disclose that the hydrophobic oxide particles have a circularity of SF1 and SF2 as recited in the instant claims. Nor does Sugiura discloses that the oxide particles have a standard deviation σ of a particle size distribution as recited in the instant claims. However, as discussed above, the hydrophobic silicon oxide particles disclosed by EP'992 meet the compositional limitations recited in the instant claims. The instant specification discloses that the toners comprising oxide particles having the SF1 and SF2 values and the particle size distribution recited in the instant

claims provide images with sufficient image density and thin-line reproducibility with very little or no hollow defects and background toner deposition. See Table 1, examples 1-13. Table 1 shows that when the oxide particles have SF1 and SF2 values that are not within the ranges recited in the instant claims, the toner provides images having hollow defects, toner deposition on the background of the images, and poor image density. Comparative example 4 in Tables 1 and 2, where the SF1 is 131 and the SF2 is 127. Table 1 also shows that when the oxide particles do not have a particle size distribution as recited in the instant claims, the toner provides images having hollow defects and poor thin line reproducibility. Comparative example 3 in Tables 1 and 2, where σ is about 0.09R. Sugiura discloses that when its hydrophobic silica particles are used as an external additive in toners, the toners provide high-quality images having appropriate image density and very little background fouling of the images. i.e., background toner deposition in the images, even when producing many copy images for a long period of time without contaminating the components in the image forming apparatus. Paragraphs 0013 and 0014, and Table 1, examples 1 and 10. Sugiura shows that when the hydrophobic silicon oxide particles in example 1 are used as the external additive in the toner in example 1, the toner provides

images with good image density, thin line reproducibility, and with no or very little hollow defects and background toner deposition in the images. Table 1, example 1. These properties appear to be the same properties sought by applicants. Accordingly, because the Sugiura hydrophobic silicon oxide particles in the example 1 meet the compositional limitations recited in the instant claims, and because when said hydrophobic silicon oxide particles are used as the external additive in toners, the toners appear to have to the properties sought by applicants, it reasonable to presume that the Sugiura hydrophobic oxide particles have the SF1 value, the SF2 value, and the particle size distribution as recited in the instant claims. The burden is on applicants to prove otherwise. Fitzgerald, supra.

18. Claims 12-15, 17, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura, as evidenced by applicants' admissions I, combined with US 6,080,519 (Ishiyama).

Sugiura, as evidenced by applicants' admission I, discloses hydrophobic silicon oxide particles as described in paragraph 17 above, which is incorporated herein by reference.

Sugiura further discloses a two-component developer comprising a carrier and a toner. The toner comprises: (1)

toner particles; (2) the hydrophobic silicon oxide particles of example 1; and (3) hydrophobic silica particles having a primary particle diameter of 10 nm. See example 10 in paragraph 0169 and in Table 1. The hydrophobic silicon oxide particles of example 1 are present in an amount of 1.0 part by weight based on 100 parts by weight of the toner, which meets the amount ranges recited in instant claims 13 and 14. Paragraph 0147. The toner particles comprise a polyester binder resin meets the toner binder resin limitation recited in instant claim 17. Black toner particles, yellow toner particles, magenta toner particles and cyan toner particles in example 1. The hydrophobic silica particles in example 10 meet the other external additives limitation recited in instant claim 15.

Sugiura further discloses that its developer can be used in an image forming apparatus. The image forming apparatus comprises a photoreceptor, i.e., a latent electrostatic image-bearing member, a charger, a light-irradiator, a developing unit, and a corotron transfer device that transfers the toner image to a receiving member. Fig. 7; paragraphs 0111-0116; and reference claims 21-28.

The Sugiura toner particles have a volume average particle size of 13.5 μm. Sugiura does not exemplify toner particles having a volume average particle size of 2 to 7 μm as recited in

instant claims 12 and 21. However, Sugiura teaches that the toner particles have a volume average particle size of not greater than 15 μm. Paragraph 0084.

Ishiyama teaches that when the volume average particle size of the toner is less than 2 μm, the charge property of the toner is insufficient and lowers the developing property (i.e., developing quality). If the volume average particle size is greater than 9 μm, the resolution of the image is degraded. Col. 7, lines 22-27. The range of 2 to 9 μm overlaps the range of 2 to 7 μm recited in instant claims 12, 18, and 21. Thus, the toner art recognizes the volume average particle size as being a result-effective variable. The variation of a result-effective variable is presumably within the skill of the person having ordinary skill in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ishiyama, to adjust, through routine experimentation, the particle size of the toner particles disclosed by Sugiura, such that the resultant toner has a volume average particle size within the scope of instant claims 19, 18, and 21. That person would have had a reasonable expectation of successfully obtaining a toner that provides images with improved resolution.

19. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura, as evidenced by applicants' admissions I, combined with Ishiyama, as applied to claim 12 above, further combined with US 5,554,478 (Kuramoto).

Sugiura, as evidenced by applicants' admission I, combined with the teachings in Ishiyama renders obvious a toner as described in paragraph 18 above, which is incorporated herein by reference.

Sugiura does not exemplify toner particles comprising a polyol resin binder as recited in instant claim 16. However, Sugiura teaches that the toner binder resin can equally be an epoxy polyol resin. Paragraph 0086, line 20.

Kuramoto discloses a polyol binder resin that comprises a main chain portion containing an epoxy resin moiety and a polyoxyalkylene moiety. Col. 3, lines 52-56. The polyol binder resin is synthesized by reacting (1) an epoxy resin, (2) a dihydric phenol, and (3) either an alkylene oxide adduct of a dihydric phenol or a glycidyl ether thereof. See Synthesis Example 1 at col. 8. Said binder resin meets the polyol recited in instant claim 16. According to Kuramoto, color toners comprising said binder resin provide images with excellent color reproducibility and uniform glossiness. Col. 3, lines 32-35, and col. 19, lines 14-17. Said color toners also can provide

sharp full color images without muddiness on a transparent film. Col. 19, line 27-30.

It would have been obvious for a person having ordinary skill in the art to use the Kuramoto polyol binder resin as the binder resin in the color toners rendered obvious over the combined teachings of Sugiura, as evidenced by applicants' admission I, and Ishiyama. That person would have had a reasonable expectation of successfully obtaining color toners that provide color images with good light transmission property, good color reproducibility, and uniform glossiness.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (571) 273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

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JLD
Oct. 24, 2005

JANIS L. DOTE
PRIMARY EXAMINER
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